

L. L. NARAYANA* & Digamber RAO*: **Contributions to the
floral anatomy of Linaceae (10)****

L. L. ナラヤナ*・D. ラオ*: アマ科の花部解剖学的研究 (10)**

In continuation of the earlier publications on the floral anatomy of Linaceae (Narayana, 1964; Narayana and Rao, 1966, 1969, 1971, 1973, 1974a, 1974b, 1976a, 1976b, 1977a, 1977b.), the present paper deals with the floral morphology and vascular anatomy of *Hugonia planchoni* Hook. f.

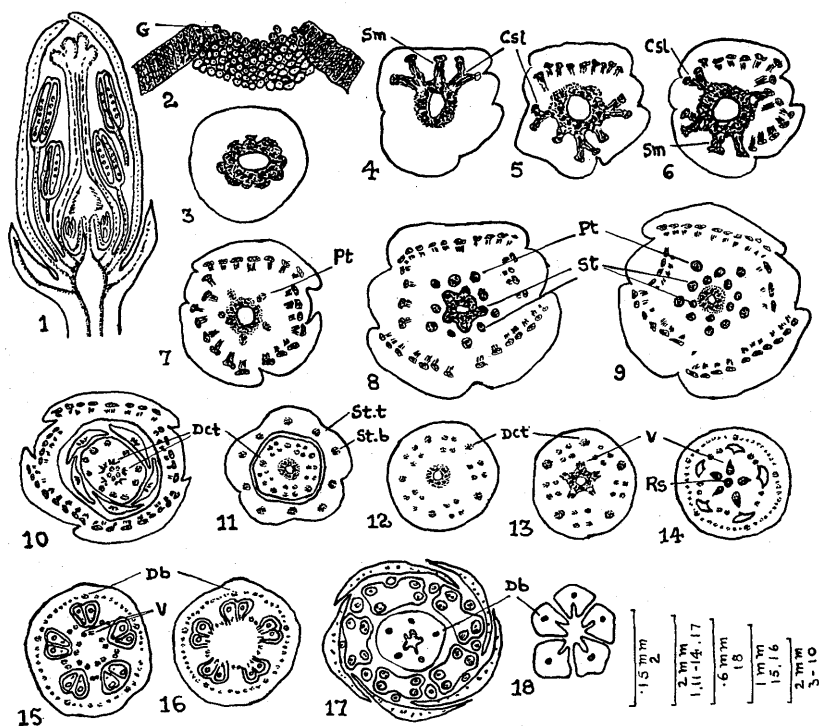
Morphology of the flower The flower is pedicellate, pentacyclic, pentamerous, heterochlamydeous, regular, bisexual and hypogynous (Figs. 1, 10, 15, 17). The quincuncial sepals are unequal in size and show slight connation at the base (Fig. 10). The outer epidermal cells in the two smaller sepals are thick-walled, palisade-like and each bears a central, multicellular, nonvascular gland on the abaxial side (Fig. 2). The free petals show contorted aestivation (Figs. 10, 17). The ten stamens are united below into tube (Fig. 11) and are of two heights the antipetalous being shorter (Figs. 1, 17). The ovary is 5-carpellary, syncarpous, 5-locular at the base, unilocular above (Figs. 15-17) and encloses two pendulous, anatropous, bitegmatic ovules in each loculus (Figs. 15, 16). The carpels are antisepalous (Fig. 10). The free styles (Figs. 1, 18) end in glandular bilobed stigmas (Fig. 1).

Floral anatomy The pedicel shows a closed ring of vascular tissue with external bands of sclerenchyma (Fig. 3). The sepal traces arise at successive levels (Figs. 4-6) and the lateral traces of adjacent sepals arise conjointly (Figs. 4-6). The traces for the five petals arise independently from the main stele (Fig. 7). As these move out, the main stele becomes a closed ring. The antisepalous and antipetalous staminal traces arise at successive levels (Figs. 8, 9).

The main stele after staminal supply forms a ring (Fig. 9). At a higher level five dorsal carpellary traces arise on the antisepalous radii (Fig. 10). Each of the emerging dorsal carpellary traces divides into a median and two

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Figs. 1-18. *Hugonia planchoni*. 1. Semidiagrammatic L.S. of flower showing the course of vascular bundles in the different floral parts. 2. Abaxial portion of sepal showing a central, multi-cellular, non-vascular gland. 3-18. Serial transverse sections of the flower showing the origin and distribution of traces to the different floral parts. For explanation see text. G: Gland. Sm: Sepal midrib trace. Csl: Common sepal lateral traces. Pt: Petal traces. St: Staminal traces. St.t: Staminal tube. St.b: Staminal bundles. Dct: Dorsal carpellary traces. Db: Dorsal bundles. V: Ventrols. Rs: Residual stele.

lateral branches (Fig. 10) of which the former functions as the dorsal carpellary trace. The lateral branches of adjacent dorsal carpellary traces after reaching the base of the septum (Fig. 11) divide tangentially forming an inner and outer pair of bundles; of these, the inner occupy the middle of the septum (Figs. 11-16) and the outer after repeated branching supply the ovary wall (Figs. 13-16). These small bundles in the ovary wall and the pairs of bundles in the mid-region of the septa fade away towards the top of the ovary (Fig. 17). The main stele after the demarcation of the dorsal carpel-

lary traces, takes the form of five bundles along the radii alternating with dorsal carpellary traces (Fig. 10). These form a ring at a higher level (Fig. 11), from which five ventral carpellary traces are organised which in turn come to lie opposite the loculi (Figs. 13, 14). Even after the formation of ventral carpellary bundles a portion of the main stele remains as residual stele (Fig. 14). The ventral bundles split into pairs of inversely oriented bundles opposite the loculi (Figs. 14, 15) and these supply the ovules (Fig. 16). The free styles are traversed by the dorsal carpellary bundles which terminate below the bilobed stigmas (Figs. 1, 18).

Summary and Conclusions The flower is pentamerous and pentacyclic. The sepals are 3-traced; they show basal union and the free limbs show quincuncial aestivation. The petals are single traced. The androecium is diplostemonous. The stamens are single-traced and of two heights, the antipetalous being shorter. The carpels are 3-traced. The placentation is axile. A residual stele is present and this lends support to the classical theory of the flower. The styles are vascularised by dorsal carpellary bundles.

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この報告ではアマ科の中の特種な分類群に属する *Hugonia* をあつかい、花の外部形態、横断切片による花部諸器官への維管束の走向を記載した。心皮への維管束が分岐した後にも中央になお中央束が残存することが注目された。

○日本新産の苔類 *Scapania ciliatospinosa* Horik. について (井上 浩)

Hiroshi INOUE: *Scapania ciliatospinosa* Horik. new to Japan.

服部・井上 (1959) は群馬県谷川岳の苔類フロラについて論じ、その中に *Scapania ornithopodioides* (With.) Pears. を記録した。最近になって、服部植物研究所の水谷正美博士から、この標本の同定がどうも疑問だからもう一度見直したら… という連絡を受けた。科学博物館に収められている谷川岳産のものを再検討した結果、これらは *S.*

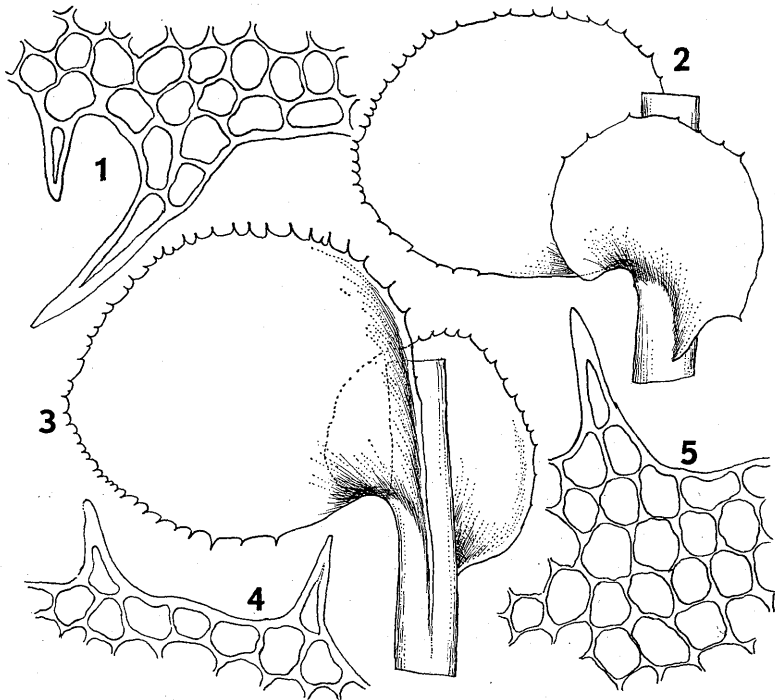


Fig. 1. *Scapania ciliatospinosa* Horik. 1. Tooth on ventral margin of ventral leaf-lobe, $\times 330$. 2. Part of shoot, dorsal view, $\times 20$. 3. Ditto, ventral view, $\times 20$. 4, 5. Tooth on dorsal margin of ventral leaf-lobe, $\times 330$. All figs. based on H. Inoue no. 7397.